

Work Order ID 85877

85877

Page 1

July-06-12 10:25:18 AM

Item ID: D212-664-107

Accept

N900040100

Setup

Start

NS1

Revision ID:

Item Name: Crosstube Low Standard Fwd

Stop

NS2

Start Date: 6/18/12 Start Qty: 1.00 *1*

Cust Item ID:

Required Date: 7/02/12 Req'd Qty: 1.00 *1*

Customer:

Reference:

Approvals: Process Plan: *JV*

Date:

Tooling:

Date:

Run

Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr								
D212-664-147	Rev B (DEO)								
100 *100* DC Document Control	DOCUMENT CONTROL Memo Photocopy bluefile and create labels as per PPP D212-664-107 D6019-128 (ID = 2.125") = CHG 002	0.00							<i>MJ 12/08/02</i>
110 *110* Packaging Packaging	Packaging Memo	0.00							<i>(DAS 16 9-89) 2/08/02</i>
120 *120* CNC Bend 2 CNC Alpha 160 Bender	BENDING MACHINE - CROSSTUBES Memo Bend tube as per Dwg D212-664-107 using CNC bender program 212-107	0.00							<i>MD / RM 12-7-10</i>

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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Date:

Tooling:

Date:

Run

Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

130

130

QC

Quality Control

QC15- Crosstube Dimensional Check

0.00

517(2)10

(X)

140

140

Crosstubes

Crosstubes

0.00

Memo 0.00
1-Cut tube as per inspection dwg and deburr ends. ***ensure saw is square***

2-Position cuffs on tube ensure proper positioning

3-Drill tube as per dwg using DT8577 location #7 & # 212 ULF using jig
DT8548 and DT8549 as per QSI 10

4-Transfer drill rivet holes from cuff into tube.

5-Identify cuff position and Batch # on each and identify tube as per dwg D212-
664-107.

6- *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***
Inspect surface damage

7- Deburr and realodine cuff.

JW

12-7-10

Mo

12-7-11

W/O:		WORK ORDER CHANGES					
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Date:

Tooling:

Date:

Run

Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

150

150

QC

Quality Control

QC5 C
Meme

0.00

S 12/02/12

160

160

HandFXtube

Hand Finishing Crosstubes

Memo

0.00

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

1- CLEAN CROSSTUBE WITH WASH'N WIPE

180

Outsource process - NDT per QSI038 4.1

0.00

180

Outsource2

Outsource process - NDT

Memo

0.00

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

Liquid Penetrant Inspection as per QSI 038Or
Issue P/O: 17428 LPI as per ASTM 1417
Level 2 Attach copy of NDT results to work order

17504

AF 12-7-20

CZ 12/02/11 ①

CZ 12/07/20①

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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NOTE: Date & initial all entries

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July-06-12 10:25:18 AM

W/O: 85877		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D212-664-107 PAR #: _____ Fault Category: ~~Machining~~ NCR: Yes No DQA: ~~Not~~ Date: 12/08/13
 Resolution: _____ Disposition: ~~Rework~~ QA: N/C Closed: ~~Not~~ Date: 12/08/14

WORK ORDER NON-CONFORMANCE (NCR)								
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
12.07.24	Z00	FROM MACHINING TRANSITION MARK VISIBLE. THIS MARK IS TYPICAL, HOWEVER IT IS USUALLY BUFFED OUT. LOCATED IN MIDDLE OF R35.5 BEND.	DAS 12 08 89	THE MARK WAS SMOOTH AND BARELY VISIBLE. PERFORM ADDITIONAL BUFFING IN AFFECTED AREA. ENSURE THERE ARE NO CIRCUMFERENTIAL MARKS.	JW 12.08.02 12/08/02	DAS 16 08 89 12.08.02 12/08/02	DAS 12 08 89 12.08.02 12/08/02	DAS 12 08 89 17/08/02
		↓	DAS 12 08 89	RE-NDT AFTER BUFFING		DAS 15 08 89 17/08/02	DAS 12 08 89 17/08/02	DAS 12 08 89 17/08/02

NOTE: Date & initial all entries

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Start Date: 6/18/12 **Start Qty:** 1.00

1

Cust Item ID:

Required Date: 7/02/12 **Req'd Qty:** 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start

NR1

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

NR2

**Sequence ID/
Work Center ID**

**Operation
Description**

**Set Up/
Run Hours**

Tool ID

Tool #

**Plan
Code**

**Accept
Qty**

**Reject
Qty**

**Reject
Number**

**Insp.
Stamp**

205

QC7-Inspect Chemical Conversion Coat

0.00

205

QC

Quality Control

Memo

0.00

DAS
16
8-69
7/07/24

210

Crosstubes

0.00

210

Crosstubes

Memo

0.00

Crosstubes

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

A8 12 - 7 - 24

215

QC5- Inspect part completeness to step on W/O

0.00

215

QC

Quality Control

Memo

0.00

DAS
16
8-69
7/07/24

W/O: 85877

WORK ORDER CHANGES

DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D212-664-102

PAR #: _____

Fault Category: Long Gage / Extube Assemly

NCR

Yes

No

DQA:

JW

Date: 12/08/13

Resolution: _____

Disposition: Renewal

QA: N/C Closed: AD

Date: 12/08/14

WORK ORDER NON-CONFORMANCE (NCR)								
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
12/07/13	#	Finsing before forming a small notch / nick in the tube on the main Bend about 38.875" from end. R-1. miss handling of tubes.	MM 12/7/13	Acceptable to take out "nick" as per small dim DS. to BD July 30th 2012.	RM 12-7-30		MM 12/7/13	DAS 16 8-8 12/07/13
				Clean with Acet & Re touch wp blushing as per AS2005	RM 12-7-30			DAS 16 8-8 12/07/13

NOTE: Date & initial all entries

Eric Downing

From: David Shepherd <dshepherd@dartaero.com>
Sent: Monday, July 30, 2012 3:03 PM
To: 'Mike Petsche'; 'Eric Downing'; 'Alex Pharand'
Cc: 'L Lacelle'; psmith@dartaero.com; Isam el Kassis; 'Bill Beckett'
Subject: RE: nick on D212-664-107

Mike,

Thanks for the clearer photo.

Eric,

It is acceptable to buff out this damage on the basis that:

- a) It is within the allowable damage limits of our ICA
- b) It is for a low gear fwd crosstube
- c) Damage is outside supports and near the neutral axis

Since the alodine coating will be compromised, does this mean that we would etch and re-alodine the entire tube to have a continuous alodine coating.

Isam & Bill,

FYI.

David

From: Mike Petsche [mailto:mpetsche@dartaero.com]
Sent: July-30-12 9:00 AM
To: 'David Shepherd'; 'Eric Downing'; 'Alex Pharand'
Cc: 'L Lacelle'; psmith@dartaero.com
Subject: RE: nick on D212-664-107

It's about 17.5" (ish) off BL 0.

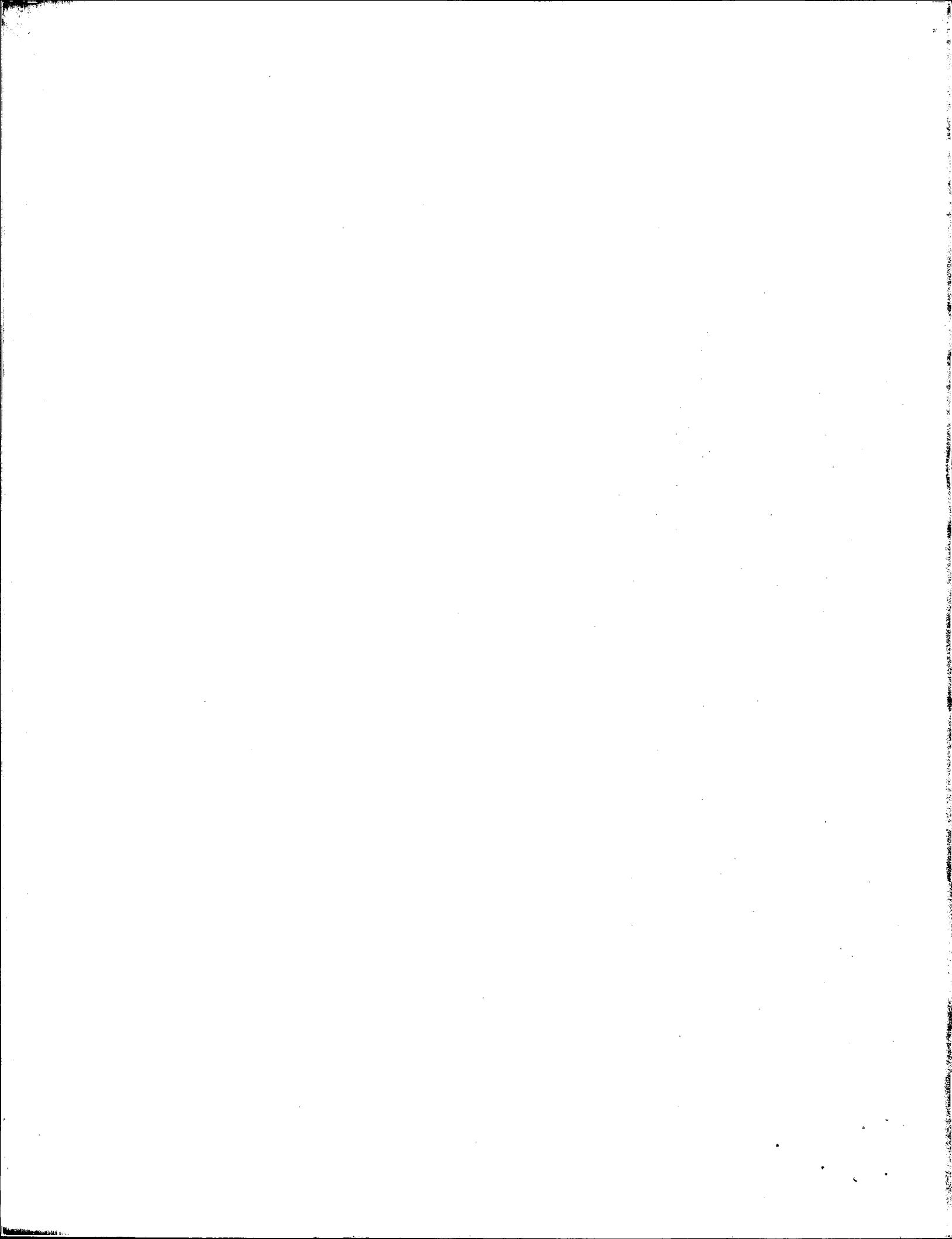
Better photo attached. You can see where it's raised on the RH side

From: David Shepherd [mailto:dshepherd@dartaero.com]
Sent: Monday, July 30, 2012 10:51 AM
To: 'Eric Downing'; 'Alex Pharand'
Cc: 'L Lacelle'; psmith@dartaero.com; 'Mike Petsche'
Subject: RE: nick on D212-664-107

How far is it from BL 0?

Can you send a better photo of the defect?

Thanks,
David



From: Eric Downing [mailto:edowning@dartaero.com]
Sent: July-30-12 5:36 AM
To: David Shepherd; Alex Pharand
Cc: 'L Lacelle'; psmith@dartaero.com; 'Mike Petsche'
Subject: nick on D212-664-107

Good morning David

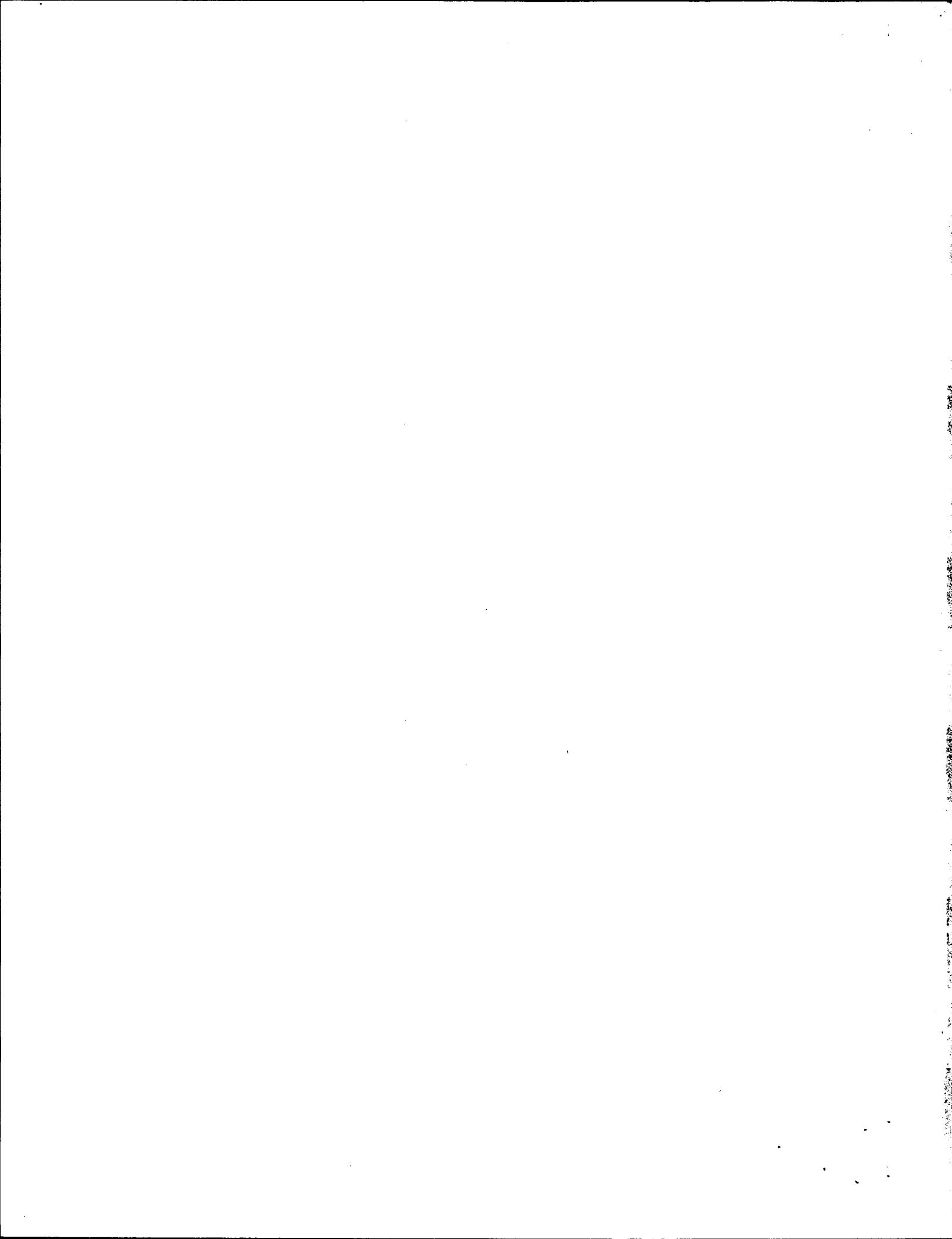
As you can see from the time I just walked in to be told of a small "nick" in a C212-664-107 cross tube. The nick appears to be about 0.012" deep and about 0.065" in width. From looking at it I would guess that it was damaged when moving tubes to pain NDT inspection and alodine. The "nick" happened after the alodine process as you can see in the pictures attached.

Now my questions are is it acceptable to buff this "nick" out ad for the alodine process how should we proceed? Can we buff out mark clean area with acid wash and apply alodine?

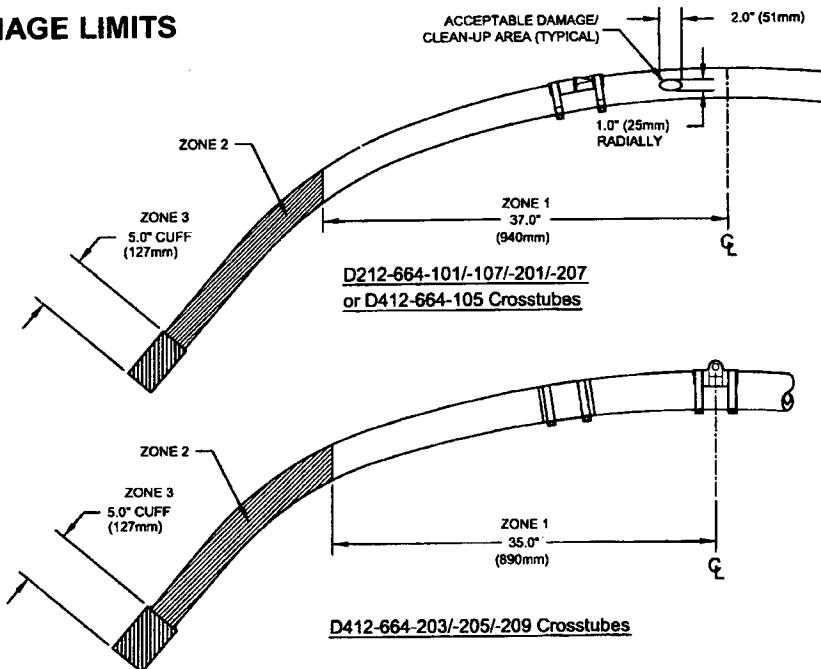
What do you think David I don't the ability to approve any reworks like this.

Thanks

Eric Downing
QC Corrdinator
Dart Aerospace LTD



5.2 DAMAGE LIMITS



Maximum Nick, Scratch, or Corrosion Damage Depth Limit			
Damage Zone	3	2	1
D212-664-101/-107 High/Std. Fwd Crosstube	0.030" (0.76mm)	0.012" (0.30mm)	0.015" (0.38mm)
D412-664-105 Low-Narrow Fwd Crosstube	0.030" (0.76mm)	0.015" (0.38mm)	0.015" (0.38mm)
D212-664-201/-207 High/Std. Aft Crosstube	0.038" (0.97mm)	0.015" (0.38mm)	0.015" (0.38mm)
D412-664-203/-209 High/Std. Aft Crosstube	0.038" (0.97mm)	0.012" (0.30mm)	0.015" (0.38mm)
D412-664-205 Low-Narrow Aft Crosstube	0.038" (0.97mm)	0.015" (0.38mm)	0.015" (0.38mm)

Figure 5-2: Acceptable Crosstube Damage Limits

5.3 300 HOUR INSPECTION

To be performed every 300 hours or if damage found on daily inspection.

Note: For the convenience of scheduling maintenance, the tolerance for scheduled inspection intervals is +/-10% (+/- 30 hours). In each case, the subsequent interval will be adjusted to re-establish the original schedule. When an inspection is done more than 10% early, subsequent inspections will be advanced as required not to exceed the maximum tolerance. Concurrence and final approval of inspection interval tolerance by the governing civil aviation authority is the responsibility of the owner/operator.

- 5.3.1 Inspect all visible areas of the crosstube for cracks. The bottom side of the crosstube should be inspected for cracks using a 10X magnifying glass with weight on the landing gear. If a pattern is observed that resembles the crack pattern shown in Figure 5-3 below, an LPI inspection should be performed as outlined in section 5.5. Cracks in the crosstube are

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W/O:		WORK ORDER CHANGES							
DATE	STEP	PROCEDURE CHANGE			By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 85877***85877***

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N900040100

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Item Name: Crosstube Low Standard Fwd

Stop

NS2

Start Date: 6/18/12 Start Qty: 1.00

1

Cust Item ID:

Required Date: 7/02/12 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run

Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

240

240

Crosstubes

Crosstubes

0.00

0.00

Crosstubes

Memo

1- Assemble as per Dwg D212-664-147

1-Abrade mating surfaces of support and crosstube with 400 grit sandpaper,
clean the area with 4105S wash 'n' wipe2-Install supports with Proseal 890 per DSI9563 and QSI 015
A/R Proseal 890 Batch: 122441

3- Torque bolts as per dwg

250

250

QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

0.00

(DAS
16
9-89) 1/05/02

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Stop

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1

Cust Item ID:

Required Date: 7/02/12 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run

Start

NR1

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

255

Pick Kit

0.00

255

Packaging

Packaging

Memo

0.00

142/12/0

260

QC4- 100% Inspect kits for completeness

0.00

260

QC

Quality Control

Memo

0.00

(DAS
16
8-89) 12/06/02

270

Packaging

0.00

270

Packaging

Packaging

Memo

0.00

Identify and pack for shipping as per PPP D212-664-107

12/06/02

W/O:		WORK ORDER CHANGES							
DATE	STEP	PROCEDURE CHANGE			By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Customer:

Reference:

Approvals:	Process Plan: _____	Date: _____	Tooling: _____	Date: _____	Run	Start	*NR1*
	QC: _____	Date: _____	SPC (Y/N): _____	Date: _____	Stop		*NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
280 *280* QC	QC21- Final Inspection - Work Order Release	0.00							MJ 12/08/02
	Memo	0.00							
	Quality Control								

W 20802

W/O:		WORK ORDER CHANGES					
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Picklist Print

June-18-12 10:46:08 AM

Page 1

Work Order ID: 85877

85877
D212-664-107

Parent Item: D212-664-107

Parent Item Name: Crosstube Low Standard Fwd

Start Date: 18/06/2012

Required Date: 02/07/2012

Start Qty: 1.00

Required Qty: 1.00

Comments:

IPP Rev:A New Issue 07.09.12 EC verified by: JLM
 IPP Rev:B ECN 1100 08-01-11 DD verified by: EC
 IPP Rev:C Ecn 1121 08-02-25 DD Verified by:ec IPP Rev:D
 10.05.27 added pick kit DD verf:EC IPP Rev:E 11.10.17
 added SEQ 215 DD verf:EC IPP REV:F 11.11.03 as per
 chg003 DD verf:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D212-664-107TRN		Manufactured	No	B 86053		140	Each	0.0000	1	1		RW 12-7-10	

Crosstube Turning Detail

D3659-1 Manufactured No

D3659-1

CUFF

			<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>		
			ST482	9			
			67005	1			
			75173	1			
			77032	7			
CR3212-4-06		Purchased	No	240	Each	202.0000	44

CR3212-4-06

CHERRY RIVET

			<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>		
			ST330	149			
			120521	149			
			ST331	53			
			112492	18			
			112794	8			
			119717	27			

JW 12-7-10

AL 12-7-24

W/O:		WORK ORDER CHANGES							
DATE	STEP	PROCEDURE CHANGE			By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Picklist Print

June-18-12 10:46:08 AM

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Work Order ID: 85877

Parent Item: D212-664-107

Parent Item Name: Crosstube Low Standard Fwd

85877
D212-664-107

Start Date: 18/06/2012

Start Qty: 1.00

Required Date: 02/07/2012

Required Qty: 1.00

D3595-063-450

Manufactured No

240

Each

155.8095

4

4

**

W 12-08-01

D3595-063-450

RUBBER CUSHION

Location	Loc Qty	Loc Code
----------	---------	----------

LG	36	
82511	36	
LG051	109.7	
80161	1.7	
<u>84715</u>	108	
MAT052	10.109474	
67353	2	
68893	6	
70113	0.56	
71354	0.2	
74113	0.349474	
75597	1	

MS21920-25

Purchased No

240

Each

107.0000

4

4

**

A 12-8-2

MS21920-25

Clamp(per MIL-DTL-8783C)

Location	Loc Qty	Loc Code
----------	---------	----------

LG050	67	
116264	2	
117998	4	
118142	4	
119339	2	
119746	2	
120475	7	
120920	46	
LG051	40	
121583	40	

B# 122204

W/O:		WORK ORDER CHANGES							
DATE	STEP	PROCEDURE CHANGE			By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

June-18-12 10:46:08 AM

Page 3

Work Order ID: 85877

Parent Item: D212-664-107

Parent Item Name: Crosstube Low Standard Fwd

85877
D212-664-107

Start Date: 18/06/2012

Start Qty: 1.00

Required Date: 02/07/2012

Required Qty: 1.00

D2893-1

Manufactured No

240

Each

25.0000

2

2

**

M/12 08 01

D2893-1

2.75 Support

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
LG	9	
83056	9	
LG052	16	
72865	2	
80271	13	
82228	1	

B± 87922

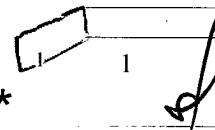
D3428-1

Manufactured No

260

Each

39.0000



**

D3428-1

Placard

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
ST042	39	
78933	2	
81881	15	
83582	10	
85228	12	

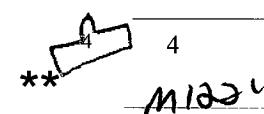
AN6-35A

Purchased No

260

Each

58.0000



**

AN6-35A

BOLT

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
342	50	
121181	50	
ST342	8	
120187	8	

W/O:		WORK ORDER CHANGES							
DATE	STEP	PROCEDURE CHANGE			By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

June-18-12 10:46:08 AM

Page 4

Work Order ID: 85877

Parent Item: D212-664-107

Parent Item Name: Crosstube Low Standard Fwd

85877
D212-664-107

Start Date: 18/06/2012

Required Date: 02/07/2012

Start Qty: 1.00

Required Qty: 1.00

AN6-36A

Purchased No

260 Each 68.0000

4

AN6-36A

** M122416 SF

Bolt

Location	Loc Qty	Loc Code
ST342	68	
118422	2	
119449	1	
120187	4	
120423	61	

MS2104216

Purchased No

260 Each 598.0000

6

Nut

Location	Loc Qty	Loc Code
ST300	598	
117677	25	
118384	3	
118927	48	
119075	322	
120308	200	

AN960JD616

NAS1149D0663J Purchased No

260 Each 0.0000

18

AN960JD616

Washer

** M121243 M22452
12/8/12 SF

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

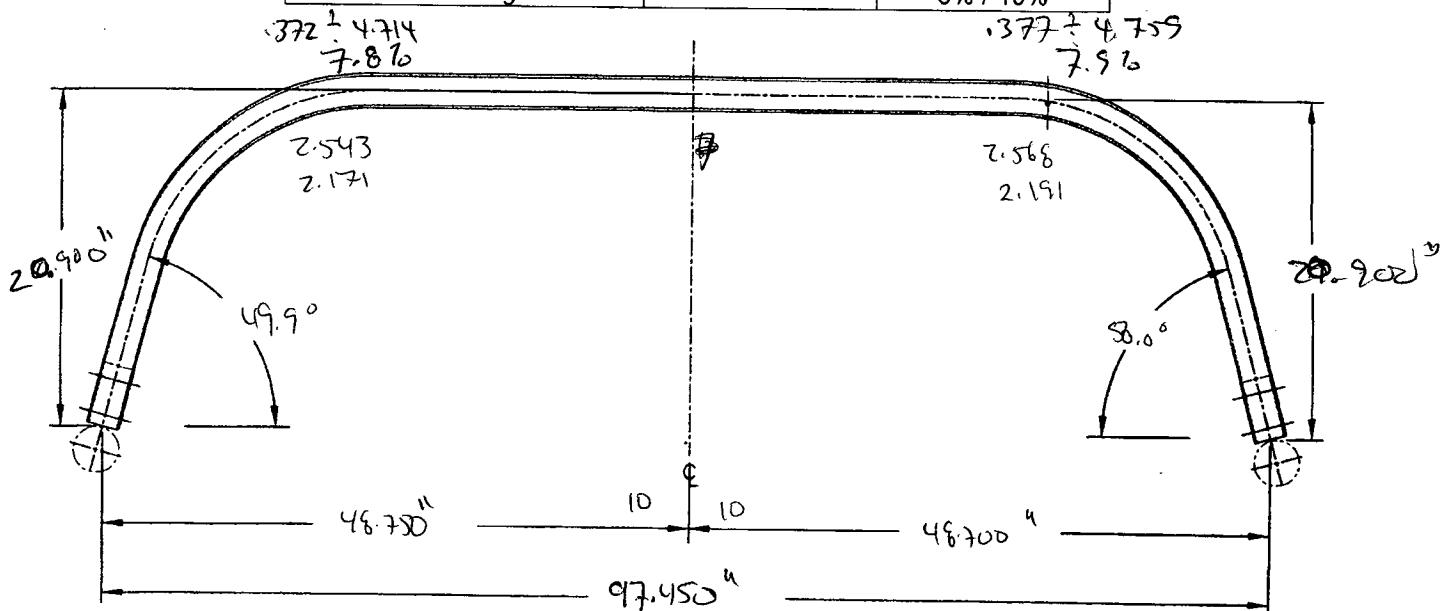
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order:	ES877
Description: Crosstube Low Fwd (205/212/412)	Part Number:	D212-664-107
Inspection Dwg: D212-664-147 Rev: B		Page 1 of 1

Required Dimension	Min	Max
Height	20.79	21.05
1/2 Span	48.55	48.81
Angle	49	52
Total Span	97.1	97.62
Bending Passes	8	--
Crushing	--	6% / 10%



	MIDDLE	
	Side A	Side B
Bending Passes	(16)	(16)
Crushing	7.870	7.970
Comments		
Side A = 10 passes.		
Side B = Middle = 7 passes.		
Side B = 10 passes.		
Mark line at bottom of base.		

QC15 Inspection	S
Date	120710

Rev	Date	Change	Revised by	Approved
A	08.02.29	New Issue	KJ/JM	
B	10.01.21	Dwg Rev updated	KJ	
C	12.04.16	Added bending, crushing dimensions	KJ	GP

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Item	Qty -147	Qty -147B	Part Number	Description
1	X		D212-664-147	CROSSTUBE ASSEMBLY (205/212/412 LOW FWD)
2		X	D212-664-147B	CROSSTUBE ASSEMBLY (214 LOW FWD)
3	1	1	D6019-128	CROSSTUBE
4	2	2	D2893-1	SUPPORT
5	4	4	D3595-063-450	RUBBER CUSHION
6	2	2	D3659-1	CUFF
7	4	4	MS21920-25	CLAMP (OR MS21920-26)
8	44	44	CR3212-4-06	RIVET (OR M76853-4-06)
9	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)
10	A/R	A/R	SIKAFLEX-241/-291	SEALANT (OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6019-128
FINISHED LENGTH = 126.528±0.020 (BEFORE BENDING/TRIMMING)
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: D212-664-147 = 24.2 lbs (PER IIN-D212-664)
D212-664-147B = 24.2 lbs (PER IIN-D2-12-664)
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) WHEN MACHINING TAPER, RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D., EXCEPT UP TO 10% IS ALLOWED IN AREA NOTED.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2893-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-25 CLAMPS (OR -26) WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE D2893-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.
- 16) INSTALL D3659-1 CUFF AFTER CHEMICAL CONVERSION COAT BUT BEFORE PAINT, WITH A LAYER OF SIKAFLEX-241/-291 OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT BETWEEN CUFF AND CROSSTUBE. SEAL EDGE OF CUFF TO ENSURE NO GAPS.
- 17) TOUCH-UP HOLES WITH CHEMICAL CONVERSION COAT.

SHOP COPY

RETURN TO

ENGINEERING

UNCONTROLLED COPY

SUBJECT TO AMENDMENT

WITHOUT NOTICE

WORK ORDER

NO. 12877 MLJ

12/06/18

DEO ATTACHED

Per ECN #11.G.4
10/07/2013

UNDER REVIEW
11/03/13

RELEASED
2009-10-29

B	REVISE GENERAL NOTES/PART LIST; UPDATE TO CURRENT STANDARDS; ADD -147B (ZN C4-2, D4-2)	RF	09.09.30
A	NEW ISSUE	CP	07.07.07
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	RF	REV. B	
MFG. APPR.	RF	DRAWING NO.	
APPROVED	RF	D212-664-147	SHEET 1 OF 4
DE APPR.	RF	TITLE	SCALE
DATE	09.09.30	CROSSTUBE (205/212/412 LOW FWD)	NTS

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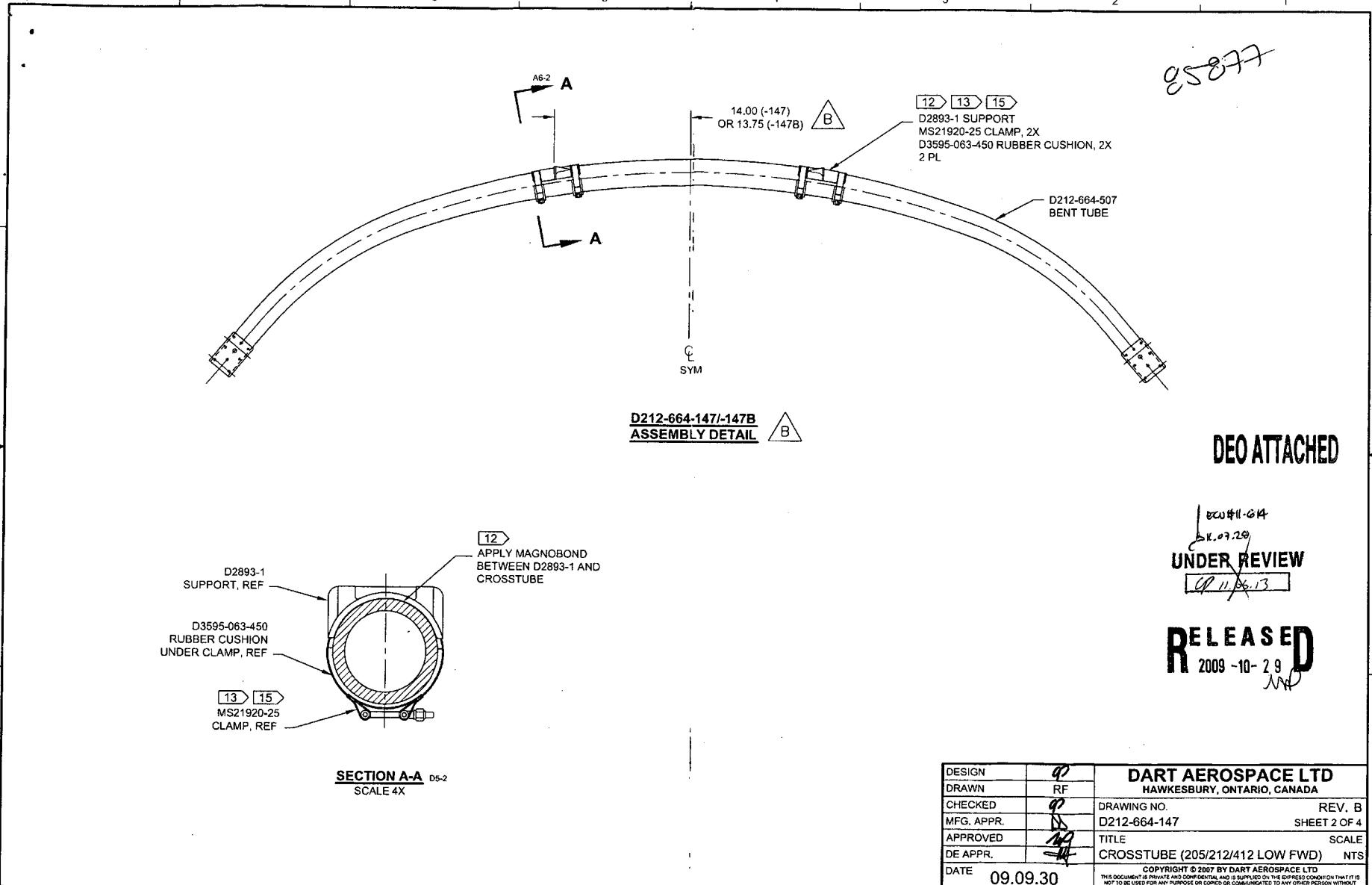
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



DESIGN	9P	DART AEROSPACE LTD
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA
CHECKED	9P	DRAWING NO. REV. B
MFG. APPR.	N	D212-664-147 SHEET 2 OF 4
APPROVED	9P	TITLE SCALE
DE APPR.	9P	CROSSTUBE (205/212/412 LOW FWD) NTS
DATE	09.09.30	COPYRIGHT © 2007 BY DART AEROSPACE LTD THIS DOCUMENT IS THE PROPERTY OF DART AEROSPACE LTD. IT IS CONFIDENTIAL AND IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

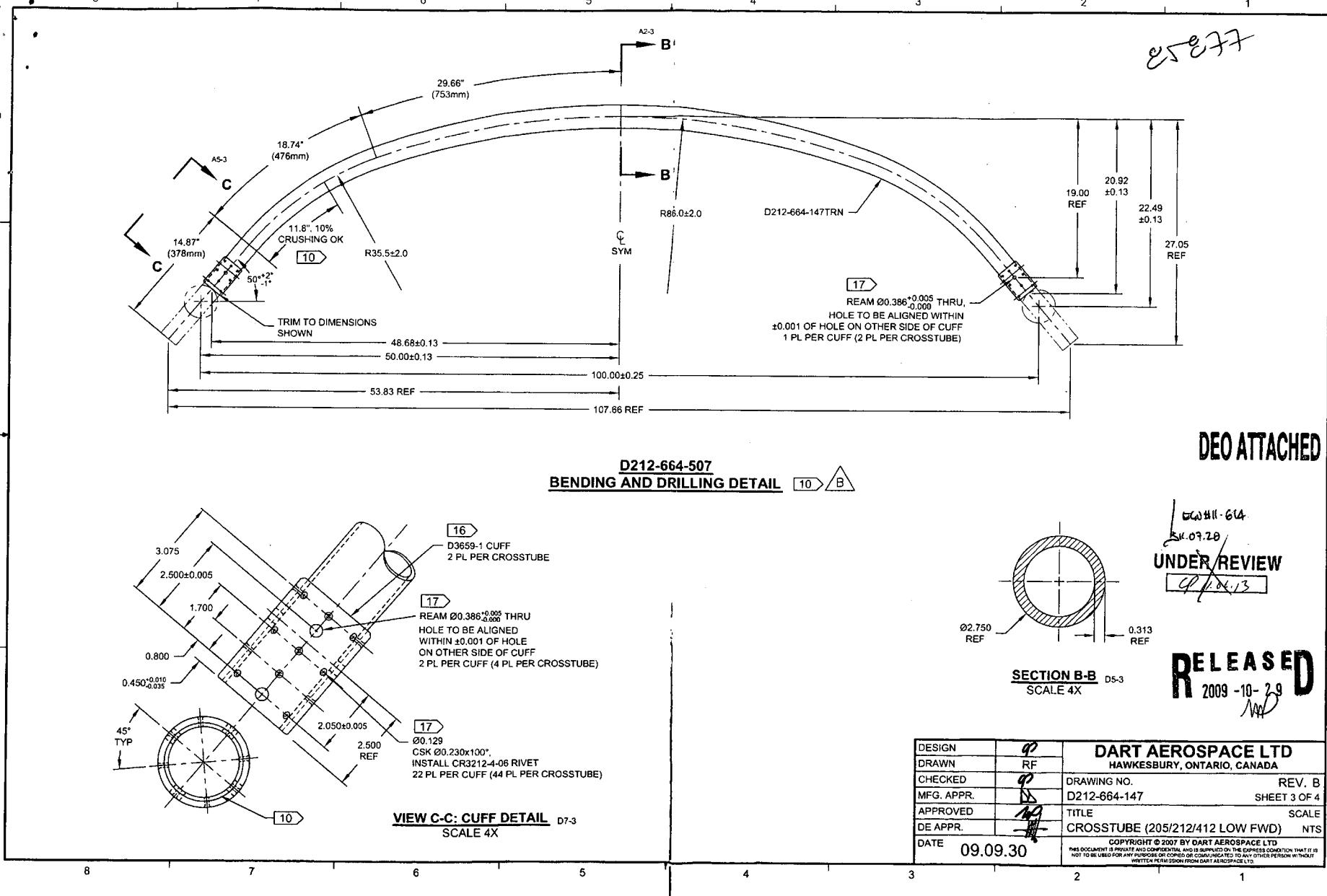
W/O:		WORK ORDER CHANGES							
DATE	STEP	PROCEDURE CHANGE			By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



DESIGN	<u>90</u>	DART AEROSPACE LTD		
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA		
CHECKED	<u>90</u>	DRAWING NO.	REV. B	
MFG. APPR.	<u>DS</u>	D212-664-147	SHEET 3 OF 4	
APPROVED	<u>MS</u>	TITLE	SCALE	
DE APPR.	<u> </u>	CROSSTUBE (205/212/412 LOW FWD) NTS		
DATE	09.09.30	COPYRIGHT © 2007 BY DART AEROSPACE LTD		
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W/O:		WORK ORDER CHANGES							
DATE	STEP	PROCEDURE CHANGE			By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

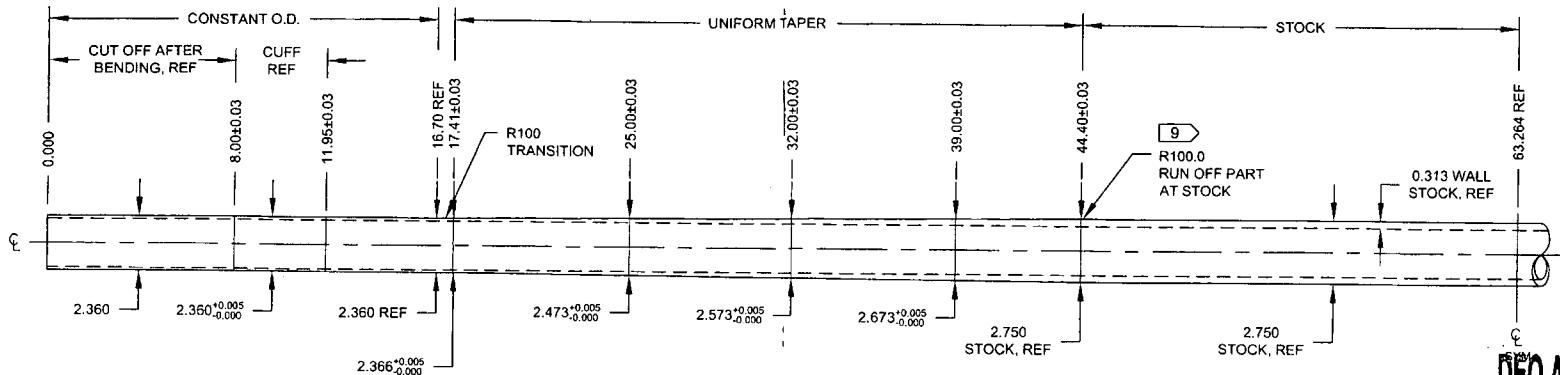
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

25077



DET ATTACHED

ECN #1-614
11.07.26

~~UNDER REVIEW~~
R 4/06/13

RELEASED
2009-10-29
JW

D212-664-147TRN
TURNING DETAIL

DESIGN	90	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	90	DRAWING NO.	REV. B
MFG. APPR.	10	D212-664-147	SHEET 4 OF 4
APPROVED	10	TITLE	SCALE
DE APPR.	10	CROSSTUBE (205/212/412 LOW FWD)	NTS
DATE	09.09.30	COPYRIGHT © 2007 BY DART AEROSPACE LTD THIS DOCUMENT CONTAINS TRADE SECRET INFORMATION WHICH IS THE PROPERTY OF DART AEROSPACE LTD. IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DRAWING NO. D212-664-147	TITLE CROSSTUBE ASS'Y (205 LOW FWD)	REV. B	DART AEROSPACE LTD ENGINEERING ORDER	D.E.O. NO. D212-664-147-B-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAVN <i>9P</i>	CHECKED <i>ASS</i>	MFG. APPR. <i>183</i>	APPROVED <i>MP</i>	DE APPR. <i>MP</i>		
DATE 11.07.15	DATE 11.07.20	DATE 11.07.21	DATE 11.07.21	DATE 11.07.21	DATE 11.07.21	

PURPOSE:

REPLACE MAGNOBOND WITH PROSEAL.

Q5877

CHANGE:

IS:

Item	Qty -147	Qty -147B	Part Number	Description
9	A/R	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

WAS:

9	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)
---	-----	-----	----------------	---

NOTE 12 & 15, SHEET 1 IS AMENDED AS FOLLOWS:

IS:

- 12) TO INSTALL D2893-1 SUPPORT: ABRADE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.

WAS:

- 12) INSTALL D2893-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

*RELEASED
2011-07-28
MP*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



LIQUID PENETRANT TEST REPORT

P- 10159

CLIENT

ATTENTION

ADDRESS

PROJECT

ITEM(S) EXAMINED

JART AEROSPACE

INDIA CHANTALE

1270, ABZdeen ST
HAWLES BURG, ON

DATE

ACUREN JOB NO.

PO/WO NO.

WORK LOCATION

ACCEPTANCE STD.

PAGE

OF

TIME

AM

PM

188-12-C0280

REV./DATE

2005

LPI WET Fluorescent on 4 Cross-Tubes

100% of EXTERNAL SURFACE on 4 "CrossTubes"

OB DESCRIPTION	PROCEDURE NO.	LT-002	REV./DATE	2009	TECHNIQUE NO.	LT-002	REV./DATE	2009
----------------	---------------	--------	-----------	------	---------------	--------	-----------	------

MATERIAL	Anodized Aluminum	THICKNESS	N/A
----------	-------------------	-----------	-----

COPE Performed a wet fluorescent LPI on 100% of THE EXTERNAL SURFACE ON ITEMS MENTIONED

TEST DETAILS							
METHOD	<input checked="" type="checkbox"/> FLUORESCENT	<input type="checkbox"/> VISIBLE	<input checked="" type="checkbox"/> WATER WASH	<input type="checkbox"/> SOLVENT REMOVABLE	<input type="checkbox"/> POST EMULSIFIED		
AMILY BRAND	MACNAUL		BLACK LIGHT S/N 13798	<input checked="" type="checkbox"/> OUTPUT > 1000 μ W/cm ²	<input checked="" type="checkbox"/> AMBIENT < 2 fc		
ENETRANT	ZL-67	MINIMUM Dwell TIME	45 MIN.	LIGHTING EQUIP.	<input type="checkbox"/> FLASHLIGHT	<input type="checkbox"/> TROUBLELIGHT	<input type="checkbox"/> OUTPUT > 100 fc @ SURFACE
ENETRANT REMOVER	H2O	MINIMUM DRY TIME	>10 MIN.	OTHER			
DEVELOPER	SKD-55	MINIMUM Dwell TIME	30 MIN.	LIGHT METER S/N	1098866	CAL DUE DATE	Oct-28-2012
DEVELOPER TYPE	<input checked="" type="checkbox"/> NON AQUEOUS	<input type="checkbox"/> AQUEOUS	<input type="checkbox"/> DRY				

TEST SURFACE					
URFACE CONDITION	<input type="checkbox"/> AS GROUND	<input type="checkbox"/> AS WELDED	<input type="checkbox"/> MACHINED	<input type="checkbox"/> SHOT BLASTED	<input checked="" type="checkbox"/> CLEAN BARE METAL
URFACE TEMPERATURE	<input type="checkbox"/> < -4°C/ 20°F	<input type="checkbox"/> -4°C/ 20°F TO 10°C/50°F	<input checked="" type="checkbox"/> 10°C/50°F TO 52°C/125°F	<input type="checkbox"/> > 52°C/125°F	

RESULTS-	(<input type="checkbox"/> METRIC <input checked="" type="checkbox"/> IMPERIAL)
----------	---

1 CrossTube Fwd WO ID 86028 ✓
 2 " " Fwd WO ID 86027 ✓
 3 CrossTube low SID Fwd WO ID 85876 ✓
 4 " " " " WO ID 85877 ✓

→ ITEM ID D212-664-101
 → ITEM ID D212-664-101
 → ITEM ID D212-664-107
 → ITEM ID D212-664-107

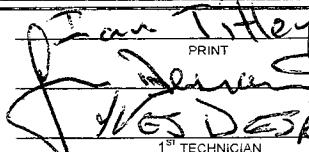
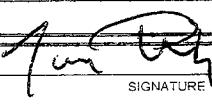
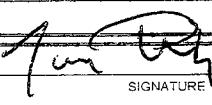
No RELEVANT indication was detected as per APPLICABLE STANDARD

Scope of Services
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Standard of Care
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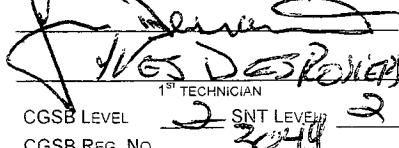
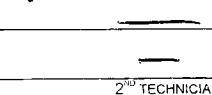
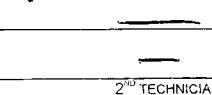
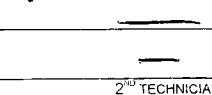
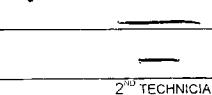
SIGNATURES

CLIENT REPRESENTATIVE


 PRINT: 
 SIGNATURE: 

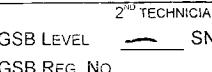
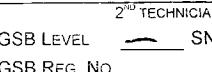
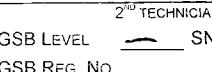
DTR # 685111

TECHNICIAN (SIGNATURE):


 NAME (PRINT): 
 1ST TECHNICIAN: 
 CGSB LEVEL: 
 CGSB REG. NO: 

REPORT
REVIEWED BY:

NAME:  INITIALS: 

2ND TECHNICIAN: 
 CGSB LEVEL: 
 CGSB REG. NO: 



LIQUID PENETRANT TEST REPORT

P- 12202

CLIENT	DAN AEROSPACE	DATE		PAGE	1 OF 1
ATTENTION	ANDY / LINDA	ACUREN JOB NO.	TUE 14 JUN 12	TIME	AM <input type="checkbox"/> PM <input checked="" type="checkbox"/>
ADDRESS	1270 ABERDEEN ST. HAWKESBURY, ON	PO/WO NO.	188-10-00285		
PROJECT	F.P.I. ON CROSSTRADES	WORK LOCATION	SAME		
ITEM(S) EXAMINED	- 11 - PCS	ACCEPTANCE STD.	ASTM 1417/05I	REV./DATE	2005

JOB DESCRIPTION	PROCEDURE NO. LT002 REV./DATE 2008	TECHNIQUE NO. LT- 1002 REV./DATE 2008
PART NO.	SEE REQS LTS	MATERIAL Aluminum — THICKNESS Various
SCOPE	A WET FLUORESCENT LIQUID PENETRANT EXAMINATION WAS COMPLETED ON THE EXTERNAL SURFACE 100%	

TEST DETAILS					
METHOD	<input checked="" type="checkbox"/> FLUORESCENT	<input type="checkbox"/> VISIBLE	WATER WASH	<input type="checkbox"/> SOLVENT REMOVABLE	<input type="checkbox"/> POST EMULSIFIED
FAMILY BRAND	MAGNAFLUX		BLACK LIGHT S/N 16459	<input type="checkbox"/> OUTPUT > 1000 μW/cm²	<input type="checkbox"/> AMBIENT < 2 fc
PENETRANT	2667	MINIMUM DWELL TIME 45	10 MIN.	LIGHTING EQUIP. <input type="checkbox"/> FLASHLIGHT <input type="checkbox"/> TROUBLELIGHT	<input type="checkbox"/> OUTPUT > 100 fc @ SURFACE
PENETRANT REMOVER	H2O	MINIMUM DRY TIME	>10 MIN.	OTHER LASINO	
DEVELOPER	SKO 52	MINIMUM DWELL TIME	10 MIN.	LIGHT METER S/N 1038866	CAL DUE DATE JU 17 2012
DEVELOPER TYPE	<input type="checkbox"/> NON AQUEOUS	<input type="checkbox"/> AQUEOUS	<input type="checkbox"/> DRY		

TEST SURFACE					
SURFACE CONDITION	<input type="checkbox"/> AS GROUND	<input type="checkbox"/> AS WELDED	<input checked="" type="checkbox"/> MACHINED	<input type="checkbox"/> SHOT BLASTED	<input checked="" type="checkbox"/> CLEAN BARE METAL
SURFACE TEMPERATURE	< -4°C/ 20°F		< -4°C/ 20°F TO 10°C/50°F		<input checked="" type="checkbox"/> 10°C/50°F TO 52°C/125°F
RESULTS-	<input checked="" type="checkbox"/> METRIC <input type="checkbox"/> IMPERIAL				

CROSS-BEAM C.		85877		86693		866672		84769		86832		87329		87328		85315		85316		85317		85318				
1	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"

Scope of Services	The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of information or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.	
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Standard of Care	In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.	
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SIGNATURES		
CLIENT REPRESENTATIVE	Andy Sheldon	PRINT
TECHNICIAN (SIGNATURE)	Signature	
NAME (PRINT):	REPORT REVIEWED BY:	
Z.M.K. Sheldon	DTR # E117389	
1 ST TECHNICIAN	2 ND TECHNICIAN	
CGSB LEVEL	SNT LEVEL	
CGSB REG. NO	CGSB REG. NO	

WHITE - CLIENT COPY

CANARY - OFFICE COPY

PINK - TECHNICIAN COPY

GOLD - OFFICE COPY

5.2 STANDARD GEAR CROSSTUBES

Item	-107	-207	-209	Part Number	Description
	X			D212-664-107	CROSSTUBE INSTALLATION, 204/205/210/212/214/412, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K STANDARD FWD
		X		D212-664-207	CROSSTUBE INSTALLATION, 204/205/210/212/214, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K STANDARD AFT
			X	D412-664-209	CROSSTUBE INSTALLATION, 412 STANDARD AFT
6	1			D212-664-147	CROSSTUBE ASSEMBLY, 204/205/210/212/214/412, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K STANDARD FWD
7		1		D212-664-247	CROSSTUBE ASSEMBLY, 204/205/210/212/214, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K STANDARD AFT
8			1	D412-664-249	CROSSTUBE ASSEMBLY, 412 STANDARD AFT
10	2			* D2893-1	SUPPORT
11	4			* D3595-063-450	RUBBER CUSHION
12	4			* MS21920-25	CLAMP (OR MS21042-26)
13	4			AN6-35A	BOLT
14	4			AN6-36A	BOLT
15	6			MS21042L6	NUT (OR MS21042-6)
16	18			AN960JD616	WASHER
20		2		* D2940-1	SUPPORT
21		4		* D3595-063-530	RUBBER CUSHION
22		4		* MS21920-28	CLAMP (OR MS21042-30)
23		4		AN6-40A	BOLT
24		2		AN6-41A	BOLT
25		6		MS21042L6	NUT (OR MS21042-6)
26		18		AN960JD616	WASHER
30			1	* D2896-1	SUPPORT
32			2	* D3595-063-570	RUBBER CUSHION
33			4	* MS21920-28	CLAMP
34			2	* MS21920-30	CLAMP (OR MS21042-32)
35			4	AN6-40A	BOLT
36			2	AN6-41A	BOLT
37			6	MS21042L6	NUT (OR MS21042-6)
38			18	AN960JD616	WASHER
39			2	* D3189-1	CHAFING SHIELD
45	2			* D3659-1	CUFF
46		2	2	* D3660-1	CUFF
47	44	44		* CR3212-4-06	RIVET (M7885/3-4-06)
48			44	* CR3212-4-07	RIVET (M7885/3-4-07)
50	1	1		-D3428-1	PLACARD

*REFERENCE ONLY. PARTS ARE INCLUDED IN D212-664-147/-247 OR D412-664-249 ASSEMBLIES ABOVE
 NOTE: KITS INCLUDE EXTRA HARDWARE FOR COMPATIBILITY WITH BOTH DART AND BELL/AAI
 SKIDTUBES.